

# **Aggregate Quality Control/Quality Assurance Program**

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(revised December 7, 2001)

A joint effort of the  
North Carolina Department of Transportation  
and the  
North Carolina Aggregates Association

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## Revisions

**December 7, 2001:** Major revisions to this Program include but are not limited to the following:

Deleted: Initial Period

Deleted Level I and Level II, replaced with Section I and Section II  
Section I created for Clean Coarse and Fine Aggregates  
Section II created for Base Materials

Exhibit G: Addition of coarse material allowed for correction of material on roadway provided that the method is approved by the Roadway Construction Engineer.

Exhibit I: Added NCDOT Aggregate QC/QA Plant Ownership Update

## **I GENERAL DESCRIPTION**

The Aggregate Quality Control/Quality Assurance Program is designed to give aggregate producers more responsibility for controlling the quality of material they produce and to utilize the quality control information they provide in the acceptance process by the North Carolina Department of Transportation (NCDOT). It requires aggregate producers to perform quality control sampling, testing and record keeping on aggregates they ship for use by the NCDOT. Also, it requires the NCDOT to perform quality assurance sampling, testing and record keeping to confirm the performance of the producers' control plan as set forth herein. The program has two sections.

**Section I** of this program is designed for Aggregate Producers providing Clean Coarse or Fine Aggregates for use on or in products such as asphalt, concrete, block, etc., that are utilized on NCDOT right of way. Asphalt sand that is produced by and utilized by the same asphalt producer shall be tested according to the provisions of the *Hot Mix Asphalt Quality Management System Manual*.

**Section II** of this program is designed for Aggregate Producers providing any type of Aggregate Base, including Cement Treated, material that is utilized on any type of NCDOT Maintenance or Contract project whether purchased by a Contractor or sold directly to NCDOT. The types of samples and the lot sizes required by both sections will be described in detail later in this document.

It is the intent of this program that acceptance or rejection of material be based on the total program. Therefore, a comparison of the Quality Control, Quality Assurance, and other sample data may be used by the NCDOT for acceptance or rejection of a lot of material.

Participation in either or both sections of this program does not relieve the producer of the responsibility of complying with all requirements of the *NCDOT Standard Specifications for Roads and Structures*.

## II PROGRAM REQUIREMENTS

**A. Basic Requirements** - There are four basic requirements for approval to participate in either Section.

- The plant must be on the NCDOT Aggregate Physical Properties List.
- The plant must have an approved in-house quality control plan.
- The plant must have a certified laboratory or have written approval to use an off-site certified laboratory.
- The plant must have a NCDOT certified quality control technician.

**B. Quality Control Plan** - The Producer must prepare a written quality control plan. The plan may be generic, but must be site specific. The plan must indicate in detail how the Producer proposes to control the equipment, materials, and production methods to insure that the specified products are obtained. The plan must list the personnel responsible for production and quality control at the site and include information on how to contact each person. The following specific information must also be included in the plan:

- Identification of the physical location of the source, to include a description of the property site and reference to the nearest identifiable points such as highways and towns.
- A description of the signs used to identify each stockpile as intended for NCDOT usage. Stockpile signs must be legible from the cab of a truck fifty feet from the identified pile.
- A loading and shipping control plan which includes a description of the methods by which the products are to be loaded and shipped for use by NCDOT, including safeguards against loading improper aggregate, contamination, degradation, and segregation of the aggregate. The plan must also include methods of insuring that all products are accurately identified and that all shipping units are clean.
- A plan for dealing with quality control sample failures. This plan must include how the Producer plans to initiate an immediate investigation and how the Producer will implement corrective action to remedy the cause of the problem.

Two copies of the Producer's written quality control plan must be submitted with the original request for plant approval. Two copies of an updated Plant QC Plan must be submitted when changes are made to the plant's operations or ownership. A copy of the Plant's Ownership Update Form must be submitted by October 31<sup>st</sup> of each year. An example of the Plant Ownership Update Form may be found in Exhibit I.

**C. Certified Laboratory** - The Program requires all tests to be conducted at laboratories certified by the NCDOT. It is expected that each source, including distribution yards, will establish and maintain its own laboratory for the performance of quality control testing, but the

NCDOT will consider a producer's request to utilize a certified laboratory in the same general vicinity. The Producer must make this request in writing and have written NCDOT approval before testing aggregates off site. The equipment required for a certified laboratory is listed in Exhibit A. Records on instrument calibration and maintenance and sample collection and analysis must be maintained at the laboratory. NCDOT may require a demonstration of the equipment.

**D. Quality Control Technician** - All samples must be taken and tested by quality control technicians certified by the NCDOT. The Producer must designate and identify the quality control technicians responsible at each plant. It is imperative that NCDOT sampling and testing procedures be followed and that NCDOT approved equipment be used in order to reduce the number of possible causes of differences between the producer's quality control results and NCDOT's quality assurance results.

Quality control technicians may be certified as NCDOT Aggregate QC/QA Sampling Technicians or as NCDOT Aggregate QC/QA Sampling and Testing Technicians. NCDOT QC/QA Sampling Technicians are authorized to take samples of materials, NCDOT Aggregate QC/QA Sampling and Testing Technicians are authorized to both sample and test materials.

At least one certified technician, either a NCDOT Aggregate QC/QA Sampling Technician or a NCDOT Aggregate QC/QA Sampling and Testing Technician must be on site at all times that material that may be used on present or future NCDOT Right of Way is being shipped.

Technicians are subject to loss of certification by revocation. The primary reason for the loss of a certification by this means would be the falsifying of test results, records, or reports. Other reasons that might lead to loss of certification include gross negligence or apparent incompetence on the part of the technician.

**E. Plant Approval Process** - The approval process requires the Producer to write the State Materials Engineer at NCDOT, Materials and Tests Unit, 1801 Blue Ridge Road, Raleigh, NC 27607, requesting that the plant be considered for acceptance into the program. This letter must identify the section or sections under which the plant would like to operate. It must identify the specific products that are to be produced. Two copies of the Producer's written quality control plan must be submitted with the request for approval.

It should be noted that a source must be on the NCDOT Aggregate Physical Properties List before it would be considered for approval for the QC/QA Program. A source must meet the general aggregate requirements, such as L. A. Abrasion and Sodium Sulfate Soundness specifications, and have produced at least 300 tons of material before it can be added to the NCDOT Aggregate Physical Properties List.

The NCDOT will review the Producer's written quality control plan and if it is approved, an on-site inspection will be scheduled. This on-site inspection will verify that the Producer's quality control plan has been implemented and is being followed and that at least one certified quality control technician is on site and will be present when material is being shipped under this



program. The laboratory will be inspected and certified if it meets the requirements and has not already been certified. If either the Producer's quality control plan or laboratory do not meet NCDOT requirements, the Producer will be informed of the deficiencies in writing. Once the deficiencies have been addressed, the Producer may again request approval in writing to the State Materials Engineer.

**F. Certification for Participation in the Aggregate QC/QA Program** - If the NCDOT has approved the Producer's written quality control plan and the on-site inspection confirms that the program requirements have been met, NCDOT will issue a certificate, valid for one year, certifying the plant for participation in the program. At the end of the year, and each subsequent year, NCDOT will conduct another on-site inspection and if all requirements are continuing to be met, the plant will be recertified for participation in the program for another year. This annual re-inspection of the plant will be scheduled after the NCDOT has received two copies of the Plant's updated QC Plan or a completed copy of the Plant's ownership update form. Random inspections may be conducted at any time by NCDOT to verify compliance with the program requirements.

This certification will authorize the plant to operate under the applicable section or sections of this program.

## IV SECTION I SAMPLING AND TESTING PROCEDURES

Section I is required when a Producer is providing clean coarse aggregate or fine aggregate to be used in asphalt, concrete, pipe, brick and block, or other uses on present or future NCDOT right of way.

**A. Producer's Quality Control** - The Producer's Quality Control (QC) samples are used by the Producer to monitor the quality of material being shipped.

1. Standard Specifications - The Producer is to perform all aggregate sampling and testing in accordance with current specifications and procedures referenced in the *NCDOT Standard Specifications for Roads and Structures*.
2. Lot Size - Lot size for Coarse and Fine Aggregates, shall be 2,000 tons for each size of material shipped, or a minimum of one sample per week per size.

For plants shipping a limited amount of material, a minimum of one sample is to be taken each week for each type and stockpile of material shipped.

3. Sampling - The certified plant technician is to obtain a sample from each lot shipped. Section I QC samples will consist of one sample per lot. The sample is to be taken from the stockpile, conveyor belt or other location approved by the NCDOT. Stockpile samples are to be taken from the same area of the stockpile from which material is being shipped. Procedures for sampling are outlined in Exhibit B. The minimum sample sizes for samples to be split are 40 lbs. for clean coarse aggregate and 20 lbs. for fine aggregate.
4. Check Samples - If the test results for a sample indicate the material does not meet the specification requirements, a check sample is to be immediately obtained by the Producer. The check sample is to be the same size and taken in the same manner as the original sample. The sample is to be clearly identified and split with one half tested by the Producer and the other half provided to the NCDOT.

If the check sample indicates the material meets the specification requirements, the Producer is to record on the test report form what is felt to be the reason for the original failure and then may resume normal testing procedures.

If the check sample indicates the material does not meet the specification requirements, the Producer is to notify the NCDOT. The Producer is to immediately initiate an investigation to determine the cause of the failure. The investigation is to include a review of the sampling procedures, the equipment used in the production and the testing of the material, and the testing procedures of the technician. If the cause can be attributed to one of the above categories, the Producer is to take corrective action to bring the material, equipment, or procedure into compliance. The Producer is to then record the corrective action on the test report form and take another check sample after the corrections have been made. The

check sample is to be the same size and taken in the same manner as the original sample. The check sample is to be clearly identified and split with one half tested by the Producer and the other half provided to the NCDOT.

If the second check sample indicates the material meets the specification requirements, the Producer may resume normal testing procedures.

If the second check sample indicates the material does not meet the specification requirements, the Producer is to notify the NCDOT and stop the shipment of material. The Producer is to continue the investigation into these failures and work with the NCDOT to determine the cause.

5. Test Procedures - Modifications to standard test procedures are permitted in some cases in this program. For clean coarse aggregate, no wash test is required on the Producer's split half of the Quality Control sample unless requested by the NCDOT. For fine aggregate, the wash test, with rapid drying being allowed, is to be performed on all samples.
6. Sample Identification and Record Keeping - It is critical that care be taken to properly label samples and record test data accurately.

Producer's Quality Control samples are to be identified with consecutive numbers for each size material and stockpile; QC-1, QC-2, etc. The samples are to be numbered consecutively for the entire calendar year.

All Quality Control test results are to be entered on the appropriate Quality Control Test Summary Form as shown in Exhibit E, or on a computerized summary form approved by the NCDOT.

Quality Control and Quality Assurance data for each size material is to be retained by the Producer for at least one year and made available to the NCDOT upon request.

After a QC Test Summary Form is completely filled with data, a copy is to be given to the NCDOT Materials Inspector and the Producer is to retain the original. When approved computerized summary forms are used or when the volume of QC tests does not result in at least one completely filled form per month, copies of these summaries are to be provided to the NCDOT at a minimum frequency of once per month.

7. Noncompliance – If the Producer has failed to meet the minimum sampling frequencies described above, the Department will request in writing that the Producer explain the circumstances related to the incident. The Producer must respond in writing postmarked within one week of receipt of the request. If the Department finds the response inadequate, the Department will notify the Producer of the deficiencies and may remove the plant from the Program. If the Producer does not respond in writing, the Department may remove the plant from the Program. If removed from the Program, the Producer may request to have the

plant reinstated once corrections have been made and the Producer demonstrates compliance with the Program.

**B. NCDOT's Quality Assurance** - The NCDOT's Quality Assurance (QA) samples are used by the NCDOT to verify the performance of the Producer's quality control plan.

1. Standard Specifications - The NCDOT shall perform all aggregate sampling and testing in accordance with current specifications and procedures referenced in the *NCDOT Standard Specifications for Roads and Structures*.
2. Sampling - The NCDOT's Quality Assurance samples are to be taken as described in Section III-A-4 above and tested by the NCDOT. As stated in Section III-A-4, the Section I QA samples are actually the NCDOT's halves of the Producer's split QC samples.

The NCDOT will obtain QA samples during random plant visits. A sample is to be taken during the plant visit from each stockpile from which material has been shipped since the last plant visit. Additionally, all split QC check samples are to be taken.

3. Testing - All QA samples are to be tested at a NCDOT laboratory.
4. QC/QA Comparison - If the results of the Quality Assurance sample are not in agreement with the results of the corresponding Quality Control sample, i.e. outside the limits of Table I or Table II of Exhibit F, an investigation will be made to determine the source of the difference. The investigation will include a review of the sampling and testing procedures and the testing equipment. The results of the investigation will be recorded on the Plant Quality Assurance Form or in the Materials Inspector's Comment Field in the Department's computerized tracking system (HiCams).

If the cause is determined to be improper sampling or testing procedures, the appropriate certified technician will be notified. If the problem continues, the technician's certification may be revoked. If the cause is determined to be in the Producer's testing equipment or handling of the material the Producer is to take corrective action. If this problem continues, the Producer's approval to provide material to NCDOT may be revoked. If the cause is determined to be in the NCDOT's testing equipment, the NCDOT will take corrective action.

If the investigation does not reveal the cause of the disparity, another QC/QA comparison will be made on the next sample taken in the presence of the NCDOT. If the comparison is within the limits of Table I of Exhibit F, the shipment of material and/or construction of an approved stockpile may continue. If, however, the comparison is not within the limits of Table I of Exhibit F, the shipment of material and/or construction of an approved stockpile is to cease and further investigation will be performed.

5. Sample Identification and Record Keeping - It is critical that care be taken to properly label samples and record test data accurately.

The Quality Assurance samples are to be numbered with a number corresponding to the appropriate Quality Control sample. The number following "QA" is the number of the corresponding Quality Control split sample, QA-1, QA-6, etc.

## VI SECTION II SAMPLING AND TESTING PROCEDURES

Section II is required when an Aggregate Producer provides any type of Aggregate Base material, including Cement Treated, that is utilized on any type of NCDOT Maintenance or Contract Project whether purchased by a Contractor or sold directly to NCDOT.

**A. Producer's Quality Control** - The Producer's Quality Control (QC) samples are used by the Producer to monitor the quality of material being shipped to projects or placed in an approved stockpile.

1. **Standard Specifications** - The Producer is to perform all aggregate sampling and testing in accordance with current specifications and procedures referenced in the *NCDOT Standard Specifications for Roads and Structures*.
2. **Lot Size** - Section II lot size for any type of Aggregate Base, including Cement Treated, material will be 2,000 tons of material, or a fraction thereof, shipped.
3. **Plant Sampling** - The certified plant technician is to obtain a pair of samples, labeled "A" and "B", each weighing a minimum of 70 lbs., from each lot of material. Procedures for sampling are outlined in Exhibit B. Each sample is to be split into two halves, using procedures outlined in Exhibit C. Each half is to be clearly identified. The Producer is to test one half of each sample and retain the other half until at least noon the following day.

For Type A ABC, the most recent three A/B sample pairs from each 5,000 tons of material shipped will be retained and made available to the NCDOT.

For Type B ABC, the most recent three A/B sample pairs from each 6,000 tons of material placed in a stockpile will be retained and made available to the NCDOT.

For ABC to be used in CTB, the most recent three A/B sample pairs will be retained according to the provisions for Type A or Type B ABC listed above.

For ABC or ABCM to be used as SA, the most recent three A/B sample pairs will be retained according to the provisions for Type A or Type B ABC listed above. For SA that is not shipped from an ABC stockpile, the other half of the most recent three A/B sample pairs from each 5,000 tons of material shipped will be retained and made available to the NCDOT.

These samples will serve as the pool from which random Quality Assurance samples will be obtained by the NCDOT. The NCDOT's Quality Assurance testing will be discussed in the following Section IV-B.

4. **Roadway Sampling** - Producer's Roadway Quality Control (RC) samples are used to check the quality of the in-place material on a project. These samples may be taken by the

Producer or Contractor from any lot of material. They will primarily be taken to provide additional information concerning the quality of a lot of material for which the Quality Control samples at the plant did not meet the specification requirements or from a subplot of material that has been corrected on the roadway. The minimum sample size for RC samples is 70 lbs.

5. Check Samples, Corrections, and Rejections - If the Quality Control samples do not meet the gradation requirements of Column B of Table 1010-1 of the Standard Specifications or the LL and PI requirements of Section 1010 of the Standard Specifications, the procedures for taking check samples, correcting material, and rejecting material are outlined in Exhibit G.
6. Test Procedures - Modifications to standard test procedures are permitted in some cases in this program. When approved by the NCDOT on a site-by-site basis, a Producer may rapid dry ABC Quality Control samples according to procedures outlined in Exhibit D.

Atterberg Limits (LL and PI) are not required to be run on the Producer's half of the split sample, except for those plants identified by NCDOT as having potential problems. In those cases, the Producer is to determine the Atterberg Limits of one sample per 5,000 tons of material. Rapid drying will not be permitted for material from which the Atterberg Limits are determined.

7. Sample Identification and Record Keeping - It is critical that care be taken to properly label samples and record test data accurately.

Producer's Quality Control samples are to be identified with consecutive numbers, such as; QC-1A, QC-1B, QC-1A/B, QC-2A, QC-2B, QC-2A/B, etc., regardless of the projects to which the material is shipped. The samples are to be numbered consecutively for the entire calendar year for each stockpile.

The QC Sample number is to be recorded by the Producer on the delivery ticket of the truck loaded immediately after the sample material is obtained in order that a RC Sample may be taken from the corresponding area of the roadway if needed.

All Quality Control test results are to be entered on the appropriate Quality Control Test Summary Form, as shown in Exhibit E, or on a computerized summary form approved by the NCDOT. The Producer is to FAX, mail, or deliver a copy of the Project-Specific Quality Control Test Summary Form, computerized summary sheets, or individual sample test results, to the appropriate NCDOT Resident Engineer, Contractor, and NCDOT Materials and Tests Unit representative within 72 hours of delivery of material to a project or placement of material in an approved stockpile.

8. Noncompliance – If the Producer has failed to meet the minimum sampling frequencies described above, the Department will request in writing that the Producer explain the

circumstances related to the incident. The Producer must respond in writing postmarked within one week of receipt of the request. If the Department finds the response inadequate, the Department will notify the Producer of the deficiencies and may remove the plant from the Program. If the Producer does not respond in writing, the Department may remove the plant from the Program. If removed from the Program, the Producer may request to have the plant reinstated once corrections have been made and the Producer demonstrates compliance with the Program.

**B. NCDOT's Quality Assurance** - The NCDOT's Quality Assurance (QA) samples are used by the NCDOT to verify the performance of the Producer's Quality Control sampling and testing program.

1. Standard Specifications - The NCDOT shall perform all aggregate sampling and testing in accordance with current specifications and procedures referenced in the *NCDOT Standard Specifications for Roads and Structures*.
2. Testing - All QA and RA samples are to be tested at a NCDOT laboratory.
3. Plant Sampling - All Quality Assurance samples are to be taken on a random basis from the available split Quality Control samples. For Type A ABC, they are to be taken at a minimum rate of one QA sample for each 5,000 tons of material shipped or at least one each week, whichever occurs more often.

For Type B ABC, Quality Assurance samples are to be taken at a minimum rate of one for each 6,000 tons of material placed in a stockpile or at least one each week, whichever occurs more often.

The rate of sampling for ABC to be used in CTB is as required for Type A ABC or Type B ABC depending on whether the material is produced from an approved stockpile or not.

The rate of sampling for ABC or ABCM to be used as SA is as required for Type A ABC or Type B ABC depending on whether the material is produced from an approved stockpile or not. For SA that is not shipped from an ABC or ABCM stockpile, the Quality Assurance samples are to be taken at a minimum rate of one for each 5,000 tons of material shipped from a stockpile or at least one each week, whichever occurs more often.

The NCDOT may instruct the Plant QC Technician to sample the materials during plant visits. The samples will be split with one half serving as the next QC sample and the other half serving as a QA sample.

4. QC/QA Comparison - If the results of the Quality Assurance sample are not in agreement with the corresponding Quality Control sample, i.e. outside the limits of Table I of Exhibit F, an investigation is to be made to determine the source of the difference. The investigation will include a review of the sampling and testing procedures and the testing equipment.



If the cause of the difference can be determined, it is to be noted on the Plant Quality Assurance Form. If the cause is determined to be improper sampling or testing procedures, the appropriate certified technician will be notified. If the problem continues, the technician's certification may be revoked. If the cause is determined to be in the Producer's testing equipment or handling of the material the Producer is to take corrective action. If this problem continues, the Producer's approval to provide material to NCDOT may be revoked. If the cause is determined to be in the NCDOT's testing equipment, the NCDOT will take corrective action.

If the investigation does not reveal the cause of the disparity, another QC/QA comparison will be made on the next sample taken in the presence of the NCDOT. If the comparison is within the limits of Table I of Exhibit F, the shipment of material and/or construction of an approved stockpile may continue. If, however, the comparison is not within the limits of Table I of Exhibit F, the shipment of material and/or construction of an approved stockpile is to cease and further investigation will be performed.

5. Roadway Sampling - NCDOT's Roadway Quality Assurance (RA) samples are used by the NCDOT to verify the quality of the in-place material on the project.

For ABC, a pair of samples, labeled "A" and "B", each weighing a minimum of 70 lbs., is to be taken randomly by the Resident Engineer's personnel from the roadway for each 5,000 tons. The "A" sample is to be taken from the first 2,500 tons placed and the "B" sample is to be taken from the second 2,500 tons placed. The average of the "A" sample and the "B" sample results will be compared to the requirements of Column C of Table 520-1 of the Standard Specifications to determine acceptability of the 5,000 tons.

For ABC to be used in plant-mixed CTB, the NCDOT will take RA samples from the belt at the pugmill in lieu of taking Roadway Quality Assurance samples. They are to be taken at the rate set forth for RA samples for ABC. They are to meet the requirements of Column C of Table 540-2 of the Standard Specifications.

For ABC to be used in road-mixed CTB, the NCDOT will take RA samples at the rate and manner set forth for ABC. They are to meet the requirements of Column C of Table 540-2 of the Standard Specifications.

SA material used on contract projects will be sampled at the same rate set forth for ABC.

The Roadway Quality Assurance samples are to be numbered by the Resident Engineer's personnel and should be in numerical order starting with 1 for each project; RA-IA, RA-IB, etc., for each type of material received.

6. Roadway Check Samples, Corrections, and Rejections - If the Roadway Assurance samples do not meet the gradation requirements of Column C of Table 1010-1 of the Standard Specifications or the LL and PI requirements of Section 1010 of the Standard Specifications,

the procedures for taking check samples, correcting material, and rejecting material are outlined in Exhibit G.

7. **Sample Identification and Record Keeping** - It is critical that care be taken to properly label samples and record test data accurately.

Quality Assurance samples are to be numbered with a number corresponding to the appropriate Quality Control sample, regardless of the project to which the material is being shipped or for which the approved stockpile is being constructed. The number following "QA" is the number of the corresponding Quality Control split sample; i.e., QA-1A, QA-2B, QA-6B, etc..

The Roadway Quality Assurance samples are to be numbered by the Resident Engineer's personnel and should be in numerical order starting with 1 for each project; RA-1A, RA-1B, etc., for each type of material received.

The Resident Engineer will maintain a listing of the locations where individual loads of material having shipping tickets with QC Sample numbers are placed. This listing shall include the QC Sample number and a descriptive location adequate to locate the material once it has been incorporated into a project. A copy of this listing shall be made available to Contractor or Producer upon request.

Copies of the NCDOT Quality Assurance and Roadway Assurance sample results will be provided by the NCDOT to the Producer's certified technician. The Materials and Tests Unit will maintain all project-specific Quality Control, Quality Assurance, Roadway Assurance, and Independent Assurance data and will make it available to the Producer or Contractor upon request.

- C. Independent Assurance** - NCDOT Independent Assurance (IA) samples are required on all Federal-Aid projects. They are used to verify the performance of the NCDOT's acceptance program to the FHWA. Lot sizes, sampling procedures, and other information related to IA samples are referenced in Exhibit H. IA samples are to be taken and numbered by the Materials and Tests Independent Assurance inspector.

## Exhibit A

### List of Equipment Required for Certified Laboratory testing Coarse or Fine Aggregate

- 1) One **Rotap** (with clock timer, enclosed in insulated cabinet and mounted independent of building floor).  
(e.g., Soiltest CL 309, Rainhart #635, Gilson #, or Mary Ann #637)
- 2) One set of **electronic scales**, readability and sensitivity of 0.1 gram, accurate to 0.1 gram or 0.1 percent of capacity with a minimum capacity of 2500 grams.
- 3) One set of **electronic scales**, readability and sensitivity of 20 grams, accurate to 20 grams or 0.1 percent of capacity with a minimum capacity of 50 kilograms (110 lbs).
- 4) A sufficient quantity of **pans** (24" x 12" x 3") for drying samples.
- 5) One **divider** (8" x 14" x -3/4" opening) with two catch pans and one pouring pan.
- 6) One **divider** (chute width 24" and adjustable 1/2" bars).  
(e.g. Gilson SP-1)
- 7) One **automatic shaker** with timer, cover and all sieve sizes required to test ABC and clean aggregates according to NCDOT Specifications.  
(e.g., Gilson TS-1)
- 8) Minimum of one set of 8" diameter **sieves** for testing ABC and one set of sieves for clean stone and fine aggregate. Must have all sieve sizes required to test ABC fines and clean aggregates according to NCDOT Specifications.
- 9) One **mortar bowl** (210 mm outside diameter).  
(e.g., A. H. Thomas Co. Coors #60328)
- 10) One **pestle** (with 2" diameter rubber covered base or drill press with rubber disc).
- 11) One **wooden mallet** (1 3/4" x 3 1/2" x 6" with 1" diameter x 12 dowel centered).
- 12) A sufficient quantity of **sample cans** (approximately 400 gram capacity).  
(e.g., Philadelphia Can Co. #P-116) and/or sample pans.
- 13) One **liquid limit machine** (with grooving tool), AASHTO T-89.  
(e.g., Humboldt Mfg. Co. H-4230).

- 14) One **oven**, gas or electric (thermostatically controlled @ 110C).  
(e.g., Precision Scientific Co. Mod 16 (Elect.) or A. H. Thomas #7193B20)  
One oven **thermometer** (0 degrees to 150 degrees C - e.g., Soiltest G - 171 )
- 15) A sufficient quantity of 2 oz **moisture cans**.  
(e.g., Soiltest, Lt-20)
- 16) One stiff blade **spatula** (3 1/2" x 13/16").  
(e.g., A. H. Thomas Co., #8338 - M10)
- 17) A sufficient quantify of **evaporation dishes**, 250 ml.  
(e.g., A. H. Thomas Co., Coors #60202)
- 18) One **dispersing machine** and cup with ribs (3 extra blades).  
(e.g., Soiltest G-120)
- 19) One pair of **tongs**.  
(e.g., Soiltest G - 171)
- 20) **Dispersing agent**.  
(e.g. Calgon\* or Sodium Hexametaphosphate\*)

\*Check Calgon label. Calgon should be free of bath oils beads. Sodium hexametaphosphate is available from Carochem, Durham, NC (919-682-5121).

### List of Equipment Required for Certified Laboratory ONLY testing Fine Aggregate

- 1) One **Rotap** (with clock timer, enclosed in insulated cabinet and mounted independent of building floor).  
(e.g., Soiltest CL 309, Rainhart #635, Gilson #, or Mary Ann #637)
- 2) One set of **scales**, readability and sensitivity of 0.1 gram, accurate to 0.1 gram or 0.1 percent of capacity with a minimum capacity of 2500 grams.
- 3) A sufficient quantity of **pans** for drying samples, and if used for AASHTO TP-33, must be of sufficient size to contain the funnel stand and to prevent loss of material.
- 4) One **divider** (8" x 14" x -3/4" opening) with two catch pans and one pouring pan.
- 5) Minimum of one set of 8" diameter **sieves** for testing fine aggregate. Must have all sieve sizes required to test according to NCDOT Specifications.
- 6) One **oven**, gas or electric (thermostatically controlled @ 110C).  
(e.g., Precision Scientific Co. Mod 16 (Elect.) or A. H. Thomas #7193B20)  
One oven **thermometer** (0 degrees to 150 degrees C - e.g., Soiltest G - 171 )
- 7) Sieve brushes.
- 8) **Dispersing agent**.  
(e.g. Calgon\* or Sodium Hexametaphosphate\*)

\*Check Calgon label. Calgon should be free of bath oils beads. Sodium hexametaphosphate is available from Carochem, Durham, NC (919-682-5121).

## Exhibit B

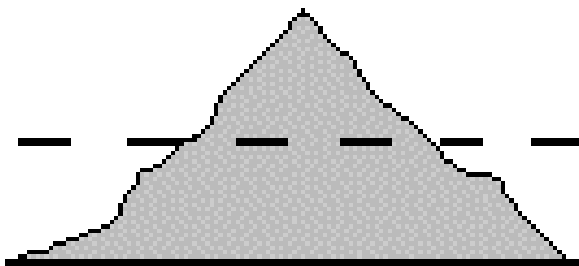
### Sampling Procedures

#### I. Introduction

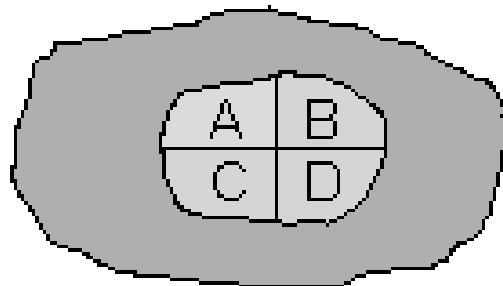
In order to reduce the number of variables that affect the correlation between, it is important that all samples be obtained following procedures outlined in the *Standard Specifications*, or as outlined in this program.

#### II. Production Stockpile Sampling

For stockpile sampling, obtain the sample from an area that represents material being shipped. The sample shall be obtained from aggregate that has been picked up by a loading unit from the existing stockpile. The material from which the samples are to be obtained should be approximately one loader bucket load. The loading unit shall dump the material on the ground (as if loading a truck), then strike off and level to approximately half the original pile height. The flat surface shall be divided into four sections. Identify sampling areas as A, B, C, and D, as shown below. Opposite quadrants, such as A and D, shall be used to acquire the sample.



Material first dumped on ground



Material after being leveled off and sectioned

#### III. Approved Stockpile Sampling

Two random samples shall be obtained from different areas of the sampling unit and tested separately. The samples shall be a minimum of 70 lbs. each.

The sample shall be obtained by removing the top six inches (1/4 layer) of the layer and sampling the underlying twelve inches (1/2 layer) of material using a steel sampling ring approved by the Department. This will leave an undisturbed six inches (1/4 layer) on the bottom of the layer.

Samples taken after a layer has been corrected should be taken in the same manner as the original sample with the exception that the sample shall be taken from the entire depth of the layer, including the corrective material.

#### **IV. Roadway Sampling**

Two random samples shall be obtained from different areas of the lot and tested separately. The samples shall be a minimum of 70 lbs. each.

The sample shall be taken for the full depth of the layer being sampled using a steel sampling ring approved by the Department.

No sample shall be taken from within 2 feet of the edge of the spread of material.

#### **V. Belt Sampling**

Two random samples shall be obtained from different portions of the lot and tested separately. The samples shall be taken from the conveyor belt before the material has passed through the pug mill.

The sample is obtained by isolating a cross section of the belt and removing all material inside of the isolated cross section.

#### **VI. Tube Sampling**

Fine aggregate samples may be obtained from the stockpile using a tube approved by the Department. The tube shall be a minimum of 1¼" (30mm) in diameter by 6 feet (2m) in length. The tube shall be constructed of aluminum and shall have square cut ends.

The sample is obtained by inserting the tube into the stockpile at evenly spaced locations across the load face of the pile. A minimum of five insertions of the tube shall be made. The insertions are to be made at a minimum height of three feet from the bottom of the pile.

## **Exhibit C**

### **Procedures for Splitting Samples using a Splitter**

Samples are to be split using one of the two following procedures:

I. Place half of the material (i.e. approximately 35 lbs. of a 70 lb. sample) in the top of the splitter. Open the splitter slowly, allowing the material to flow into the two catch pans. Switch the pans from one side of the splitter to the other and place the remainder of the material in the top of the splitter. Open the splitter slowly, allowing the remainder of the material to flow into the two catch pans.

or

II. Place all of the material in the top of the splitter. Open the splitter slowly, allowing the material to flow into the two catch pans. Compare the weights of the two pans to see if they are within 3% of each other (i.e. within 2.1 lbs. for a 70 lb. sample). If they are not within this tolerance, place all of the material back in the top of the splitter and repeat the procedure.

In both cases, the finger gate settings should be 1 1/2 times larger than the material being split, the area on which the splitter rests should be level, and the material should be split before the material is completely dry.

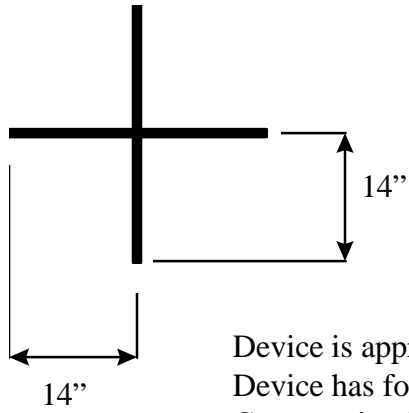
### **Procedures for Splitting Fine Aggregate Samples using a Divider**

This procedure may be used in place of the splitter method described above for Fine Aggregate samples only. The procedure requires the use of an impervious surface such as a steel plate, and a four way divider. If a table is used, it shall be approximately 28 inches deep by 32 inches wide. The four way divider shall have legs approximately 28 inches long that intersect in the middle, forming a right angle. The device shall be approximately 5 inches tall. The material should be split before the material is completely dry.

Place all of the moist material in the center of the table. Remix the sample thoroughly and mound it in a cone shaped pile approximately 6 inches high. Push the four way divider down through the center of the pile until contact with the table surface is made. Slide the divider back and forth on the table surface to separate the fine aggregate sections from each other slightly. Remove two of the opposite quadrants (sections) of material. Remix the remaining two quadrants and repeat the procedure as necessary until the remaining material is the correct quantity for the test to be run.



## Divider for Splitting Fine Aggregate Samples



Device is approximately 5" tall.

Device has four legs attached at right angles, each leg is 14" long.  
Construction is of 18 gauge or similar aluminum.

## **Exhibit D**

### **Rapid Drying Procedure**

- A. Use metal frame (angle iron) to support standard drying pans a minimum of 4" above gas burner units or electric heating elements.
- B. Sample size 30-40 lbs. per pan (uniformly spread in pan)
- C. For gas drying, adjust flame from burner units to avoid excessive heat directly to bottom of pan.
- D. During drying of sample, technician should be present at all times to:
  - 1) Monitor and adjust heat when necessary,
  - 2) Mix, stir and turn the aggregate over in the pan to prevent scorching of the sample.
- E. Allow sample to cool, stirring sample occasionally to assist in uniform cooling.
- F. Process the cooled sample.



## Exhibit F

**Table 1**  
**Tolerances for Comparisons of Coarse Aggregate QC/QA Gradations**

Sieve Sizes	ABC	#4	#467M	#5	#57 #57M	#6	#14M	#67	#78M
2"									
1 1/2"		+/- 2	+/- 2		+/- 2				
1"	+/- 4	+/- 4		+/- 2	+/- 3			+/- 2	
3/4"		+/- 4	+/- 5	+/- 5		+/- 3		+/- 3	+/- 2
1/2"	+/- 5			+/- 2	+/- 5	+/- 4			+/- 3
3/8"		+/- 2	+/- 3	+/- 2		+/- 4	+/- 3	+/- 5	+/- 3
#4	+/- 6		+/- 2		+/- 3	+/- 2	+/- 5	+/- 3	+/- 5
#8					+/- 3		+/- 5	+/- 3	+/- 3
#10	+/- 5								
#40	+/- 5								
#80									
#200	+/- 3	+/- 0.5	+/- 0.5	+/- 0.5	+/- 0.5	+/- 0.5	+/- 0.5	+/- 0.5	+/- 0.5
Soil Mortar									
#40	+/- 6								
#200	+/- 5								
LL	+/- 4								

**Table 2**  
**Tolerances for Comparisons of Fine Aggregate QC/QA Gradations**

Sieve Sizes	Dry Screenings	Washed Screenings	Asphalt Sand	1S	2S	2MS	4S
1/2"							
3/8"							
#4	+/- 2	+/- 2	+/- 2				
#8	+/- 6	+/- 6	+/- 6	+/- 1	+/- 1	+/- 1	+/- 2
#10							
#16				+/- 3	+/- 3	+/- 3	+/- 3
#30				+/- 3	+/- 3	+/- 3	+/- 3
#40	+/- 6	+/- 6	+/- 6				
#50				+/- 2	+/- 2	+/- 2	+/- 3
#80	+/-4	+/-4	+/-4				
#100				+/- 1	+/- 1	+/- 1	+/- 2
#200	+/- 2	+/- 2	+/- 2	+/- 1	+/- 1	+/- 1	+/- 1

## **Exhibit G**

### **Procedures for Accepting Material, Taking Check Samples, Correcting Material, Applying Penalties, and Rejecting Material**

#### **I. Introduction**

The Aggregate Quality Control/Quality Assurance Program significantly changes how the NCDOT confirms that the aggregate materials being provided by the Producers meet the requirements of the Standard Specifications. However, it should be understood that the Standard Specification requirements for gradation and other material properties are not changed by this program. The intent of this exhibit is to provide some details from the Standard Specifications and to reference other appropriate sections that may provide additional information related to aggregates.

#### **II. Type A ABC**

A. Plant Quality Control Samples - Samples are to be taken from each lot as discussed in Section IV-A-3. For the lot to be acceptable, the average test results shall meet the gradation requirements shown in Column B of Table 520-1 and the range between the test results of the 2 samples shall not exceed the requirements of Column D of Table 520-1. When the average test result exceeds the gradation limits given in Column B but falls within the limits given in Column C, the lot shall be rejected and shall be removed and replaced by the contractor, or at the option of the Contractor, the lot may be left in place and the material will be considered as being reasonably acceptable in accordance with the provisions of Article 105-3, and an adjustment in contract unit price will be made as follows:

The number of points shown in Column E of Table 520-1 will be assigned to the lot involved on an accumulative basis for each percent that the base material is outside the gradation range shown in Column B. Price adjustments will be made by reducing the contract unit price by 2 percent for each point assigned.

**Table 520-1**  
**Aggregate Base Course**  
**Gradation Acceptance Ranges**

Column A	Column B % Passing	Column C % Passing	Column D Range	Column E
1 1/2"	100	98-100	3	1
1"	75-97	72-100	15	1
1/2"	55-80	51-83	20	1
#4	35-55	35-60	18	3
#10	25-45	20-50	18	2
#40	14-30	10-34	14	3
#200a	4-12	3-13	7	5
#200b	4-10	3-11	6	5
Material Passing No. 10 Sieve (Soil Mortar)				
#40	40-84	36-86	35	2
#200	11-35	10-36	20	2

- a. This requirement will be applicable unless otherwise specified in the special provisions.
- b. This requirement will be applicable only when specified in the special provisions.

When the test results for a lot exceed the gradation shown in Column C of Table 520-1, the lot will be rejected and shall be removed and replaced by the Contractor at no cost to the Department or at the option of the Contractor, the lot may be corrected.

When the test results for the 2 samples used to determine the average test result for acceptance exceed the range established by Column D of Table 520-1, the lot, at the option of the Contractor, may be corrected or judged to be nonuniform and acceptance will be made in accordance with Article 105-3 and an adjustment in contract unit price will be made as follows:

The number of points shown in Column E of Table 520-1 will be assigned to the lot involved on an accumulative basis for each percent that the range between the test results of the 2 samples exceeds those values given in Column D. Price adjustments will be made by reducing the contract unit price by 2 percent for each point assigned. The unit price adjustment for nonuniform base material will be in addition to any price adjustment determined necessary for average gradation.

When the Contractor chooses the option to correct the subplot, the Contractor will take two (2) random Roadway Quality Control Samples from within the corrected subplot. When the average test results of the Contractor's two Roadway Samples fall within the gradation limits

as shown in Column B of Table 520-1, the corrected subplot shall be acceptable for Quality Assurance Sampling by the Department.

In addition to the gradation acceptance requirements listed in Table 520-1, the material passing the No. 40 sieve shall not have a Liquid Limit in excess of 30 nor a plasticity index in excess of 6. If any individual test result indicates values exceeding these, the lot shall be rejected and shall be removed and replaced by the Contractor or, at the option of the Contractor, the lot may be corrected. The Contractor will take two (2) random Roadway Quality Control Samples from within the corrected lot. The individual test results must indicate a liquid limit less than 30 and a plasticity index less than 6 for the corrected lot to be acceptable for Quality Assurance Sampling by the Department.

B. Roadway Quality Assurance Samples - Samples are to be taken from each lot as discussed in Section IV-B-3. When the average gradation test result falls within the limits of Column C of Table 520-1, and the range between the test results does not exceed the limits of Column D of Table 520-1, the 5000 ton lot will be accepted. When the average gradation test result falls outside the limits of Column C of Table 520-1, the following steps will be followed:

1. Additional sampling of the 5000 tons of material shall be done in order to isolate the unacceptable material. The procedure for this additional sampling shall consist of dividing the 5000 tons of material into two 2500 ton sublots and taking 2 samples at random locations from each of these two sublots. The gradation results of the 2 samples shall be averaged and this average shall be used to determine the acceptance of each of the sublots.

When the average gradation test results for a subplot is within the limits shown in Table 520-1, Column C, the subplot will be considered acceptable.

When the average gradation test results for a subplot exceed any of the limits shown in Table 520-1, Column C, and the subplot cannot be corrected by the addition of either coarse or fine aggregate or when the average gradation of a corrected subplot exceeds any of the limits of Table 520-1, Column B, the subplot will be rejected and shall be removed and replaced at no additional cost to the Department unless otherwise approved by the Engineer. The replacement material shall meet the specification requirements for Type A aggregate.

When the average gradation test results for a subplot exceed any of the limits shown in Table 520-1, Column C, and the test results indicate the material can be corrected by the addition of either coarse or fine aggregate, the Engineer may allow the material to be corrected provided that the Contractor utilizes a type of mechanical mixer to uniformly mix the materials to the required depth to the satisfaction of the Roadway Construction Engineer and that there is no additional cost to the Department for furnishing, adding, remixing, reshaping, and recompacting of the added material. When the average gradation test results of the corrected subplot are within the limits shown in Column B of Table 520-1, and the range between the test results does not exceed the limits of Column D of Table 520-1, the subplot will be considered acceptable.



2. A new lot, comprising 5000 tons of ABC or a fraction thereof placed after the 2500 tons addressed above, shall be designated and the Roadway Assurance Sampling procedure described above shall be repeated for the new lot.

In addition to the Gradation Acceptance requirements listed in Table 520-1, the material passing the #40 sieve shall not have a liquid limit in excess of 30 nor a plasticity index in excess of 6. If any individual test result from a lot indicates values exceeding these, the Engineer may reject the lot.

In the event of the failures of two consecutive lots, the Department may withdraw its approval of the Producer's Quality Control Program and the material will then be sampled, tested, and accepted by the Department in accordance with the provisions of Subarticle 520-6 (B) Type A aggregate.

### **III. Type B ABC**

A. Plant Quality Control Samples - Samples are to be taken from each lot as discussed in Section IV-a-3. For material to be acceptable, it shall have been stockpiled, sampled, tested, and approved in accordance with the provisions of Subarticle 520-6(C)(2) and subsequently placed on the roadway, sampled, tested, and approved in accordance with the provisions of Subarticle 520-6(C)(3).

A stockpile sampling unit shall consist of approximately 2000 tons of base material in a layer of approximately 2 feet in thickness which has been constructed in thoroughly mixed sublayers of approximately 8 inches of thickness. The acceptance lot size shall be the entire stockpile subject to the provisions of this article.

The base material shall contain approximate optimum moisture when placed in the stockpile. When more than 2000 tons of base material is to be placed in a stockpile layer, the layers shall be divided into sections of approximately 2000 tons and each section identified by properly maintained corner stakes as the work proceeds.

For each sampling unit, 2 random samples shall be taken. The gradation test results of these samples shall be averaged and the average shall be used to determine the acceptability of the unit.

Where a unit fails to meet specification requirements of Article 1010-3(B), the unit represented shall be removed from the stockpile or covered by spreading the required amount of corrective material over the surface of the unit. Correction will not be allowed when the amount of corrective material required exceeds 6 inches in depth, in which case the unit will be rejected and shall be removed from the stockpile.

In addition to the gradation acceptance requirements listed in Table 1010-1, the material passing the No. 40 sieve shall not have a liquid limit in excess of 30 nor a plasticity index in excess of 6. If any individual test results indicates values exceeding these, the Engineer may reject the entire lot

**Table 1010-1**  
**Type A and B Aggregate Base Course**  
**Acceptance Criteria**

Column A	Column B % Passing	Column C Range
1 1/2"	100	3
1"	75-97	15
1/2"	55-80	20
#4	35-55	18
#10	25-45	18
#40	14-30	14
#200a	4-12	7
#200b	4-10	6
Material Passing No. 10 Sieve (Soil Mortar)		
#40	40-84	35
#200	11-35	20
Material Passing No. 40 Sieve		
L.L.	0-30	--
P.I.	0-6	--

- a. This requirement will be applicable unless otherwise specified in the special provisions.
- b. This requirement will be applicable only when specified in the special provisions.

Sampling of a replaced unit will be performed in the same manner as the original sampling.  
Resampling of a corrected unit will be done in accordance with procedures outlined in Exhibit B.

The completed stockpile will be approved only when the average of all the individual unit gradation test results meet the requirements for Subarticle 1010-3(B) for a completed stockpile.

The minimum height of an approved stockpile layer shall not be less than 5 layers. The material shall be removed from the stockpile by loading from the bottom edge of the pile.

No additional material shall be placed on a stockpile that has been completed and approved.

B. Roadway Quality Assurance Samples - Samples are to be taken from each lot as discussed in Section IV-B-3. When the average gradation test result falls within the limits of Column C of Table 520-1, and the range between the test results does not exceed the limits of

Column D of Table 520-1, the entire 5000 ton lot will be accepted. When the average gradation test result fall outside the limits of Column C of Table 520-1, the following steps will be followed:

1. Additional sampling of the 5000 tons of material shall be done in order to isolate the unacceptable material. The procedure for this additional sampling shall consist of dividing the 5000 tons of material into two 2500 ton sublots and taking 2 samples at random locations in each of these sublots. The gradation results of the 2 samples will be averaged and this average will be used to determine the acceptance of each of these sublots.

When the average gradation test result for a subplot is within the limits shown in Column C of Table 520-1, the subplot will be considered acceptable.

When the average gradation test result for a subplot exceeds any of the limits shown in Column C of Table 520-1, and the subplot cannot be corrected by the addition of either coarse or fine aggregate or when the average gradation test result for a corrected subplot exceeds any of the limits shown in Column B of Table 520-1, the subplot will be rejected and shall be removed and replaced by the Contractor at no cost to the Department unless otherwise approved by the Engineer. The replacement material shall meet the specifications for Type A aggregate or Type B aggregate, depending upon the source of the material.

When the average gradation test result for a subplot exceeds any of the limits of the tolerances shown in Column C of Table 520-1, and the test result indicates the material can be corrected by the addition of coarse or fine aggregate, the Engineer may allow the material to be corrected provided the Contractor utilizes a type of mechanical mixer to uniformly mix the materials to the required depth to the satisfaction of the Roadway Construction Engineer and there is no additional cost to the Department for the furnishing, adding, remixing, reshaping, and recompact of the added material. When the average gradation test result of the corrected subplot is within the limits shown in Column B of Table 520-1, and the range between the test results does not exceed the limits of Column D of Table 520-1, the subplot will be considered acceptable.

2. A new lot, comprising of 5,000 tons of ABC or fraction thereof placed after the 5000 tons addressed in (1) above, shall be designated and the sampling procedure of Subarticle 1010-3(3) shall be followed.

In the event of the failures of 2 consecutive lots. the Department may withdraw its approval of the Type B ABC and the material will be sampled, tested, and accepted in accordance with the provisions of Subarticle 520-6(B), Type A aggregate.

## **Exhibit H**

### **Independent Assurance Sampling and Testing**

#### **I. Introduction**

As discussed in Section IV-C, Independent Assurance (IA) samples are required on all Federal-Aid projects. They are used to verify the performance of the NCDOT's acceptance program to the FHWA.

#### **II. Lot Sizes and Sampling Procedures**

The lot size for Type A ABC is 20,000 tons or a fraction thereof and the lot size for Type B ABC is 40,000 tons or a fraction thereof. The lot size for ABC to be used in Cement Treated Base (CTB) is as required for Type A ABC or Type B ABC depending on whether the material is provided from an approved stockpile or not.

For Type A ABC, Type B ABC, or road-mixed CTB, the IA sample for a lot will consist of one sample, weighing a minimum of 70 lbs., taken from a location adjacent to either the "A" or "B" Roadway Assurance sample. For plant-mixed CTB, the sample will be taken from the belt of the pugmill immediately following either the "A" or "B" additional QA sample referred to in the fourth paragraph of Section IV-B-3.

The gradation results of these samples will be correlated according to the procedures outlined in the statistical program for comparing Independent Assurance test results and acceptance test results. If the correlation results in a fair or poor rating, the Independent Assurance Section Supervisor will conduct an investigation as to the cause of the rating.

## Exhibit I

### NCDOT Aggregate QC/QA Plant Ownership Update

Name of Company: \_\_\_\_\_

Corporate Address and Contact Information:

Street: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP \_\_\_\_\_  
Telephone: \_\_\_\_\_ FAX: \_\_\_\_\_  
Email: \_\_\_\_\_  
Name and Title of Contact: \_\_\_\_\_

Name of Facility: \_\_\_\_\_

NCDOT Facility Number: CA \_\_\_\_\_ FA \_\_\_\_\_

Facility Mailing Address and Contact Information:

Street: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP \_\_\_\_\_  
Telephone: \_\_\_\_\_ FAX \_\_\_\_\_  
Telephone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Name and Title of Contact: \_\_\_\_\_

Facility Physical Address:

Street: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP \_\_\_\_\_  
Driving Directions from Major Landmark: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Plant Personnel Responsible for Quality:

	Name	Title	Cert. Number <sup>1</sup>
1)	_____	_____	_____
2)	_____	_____	_____
3)	_____	_____	_____
4)	_____	_____	_____
5)	_____	_____	_____

The Information for this facility HAS changed since this form was last submitted? **YES / NO**

The Quality Control Plan for this facility HAS been revised since it was NCDOT Approved? **YES / NO**

If YES, attach copy of current Quality Control Plan to this document and submit for review.

I certify that the foregoing entries are correct.

Signature \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

<sup>1</sup> List NCDOT assigned Technician Certification Number if applicable.